

Appln. No.: 10/776,472
Amndt. dated April 25, 2005
Reply to Office Action of December 23, 2004

Remarks/Arguments

As of the Office Action mailed December 23, 2004 claims 1-11 are pending in the application. Claims 1-5 have been withdrawn from consideration and claims 6-11 stand rejected. Reexamination and reconsideration are respectfully requested in light of the amendments and remarks/arguments herein.

Elections/Restrictions

The Examiner has requested a restriction of the claims under 35 U.S.C. §121. On December 3, 2004, a provisional election was made with traverse to prosecute the invention of group II, claims 6-11. Claims 1-5 were withdrawn from further consideration by the Examiner, 37 C.F.R. 1.142(b), as being drawn to a non-elected invention. The Applicant affirms this restriction and therefore withdraws claims 1-5 from the present application.

Amendments to the Claims

Claims 6 and 11 have been amended to reflect "a metallic coating alloy comprising a deoxidizing element and an oxygen seeking nonmetal/metalloid, wherein said deoxidizing element is present between 20%-70% in said metallic coating alloy." In addition, claims 6 and 11 have been amended to recite that the invention is directed at an iron based alloy wherein said alloy includes a deoxidizing element selected from the group consisting of manganese, chromium, vanadium, titanium, zirconium, hafnium, niobium, lanthanide metals and combinations thereof and an oxygen seeking nonmetal/metalloid, wherein said deoxidizing element and nonmetal/metalloid is present between 20%-70% in said iron based metallic coating

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alloy. Support can be found at paragraph 0018 of the published application. Support for the particular elements recites and their associated concentration and the use of an oxygen seeking nonmetal/metalloid is recited at paragraphs 0013 and 0018. Support for the feature that one clean the oxidized metal surface layer can be found at paragraph 0015-0016. In addition, claims 1 and 11 have been amended to recite an ASTM C633 bond strength of at least about 5500 psi. Support can be found in Table 1 which provides a "Summary of Bond Strength Data." No new matter has been entered by said amendments.

Claim 12 has been added. Support for this amendment may be found, for example at paragraph 0013 of the published application.

Rejections Under 35 USC §102/103

Claims 6-10 stand rejected under 35 U.S.C. §102 as being anticipated by Kung, U.S. Patent No. 6,302,975. In addition, claim 11 was rejected under 35 U.S.C. §103(a) in view of Kung.

The amendments to the claims herein are believed to render these objections moot. As an initial matter, the claims have been amended to recite that the metallic alloy for deoxidizing is an iron based alloy. Significantly, Kung fails to teach or suggest the use of iron in any of his alloys. Specifically, the compositional features of Kung's alloys are disclosed at column 6, lines 42-47 which emphasize that the alloy is not iron based. For this reason alone it is believed that the outstanding rejection under 35 U.S.C. §102 is rendered moot and it is believed that Kung would not support any sort of rejection under 35 U.S.C. §103.¹

¹ In fact, it is believed that the Examiner properly recognized that Kung was limited to "aluminum-based diffusion coating of a steel workpiece" as recited at page 3 of the Office Action of December 23, 2004.

Appln. No.: 10/776,472
Amndt. dated April 25, 2005
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Claims 6-8 stand rejected under 35 U.S.C. §102 as being anticipated by Branagan U.S. Patent No. 6,258,185. In addition, claim 11 was rejected under 35 U.S.C. §103 in view of Branagan.

As noted above, the claims have been amended to recite that one reduces an oxidized metallic layer, which then renders the layer substantially clean of said oxidized layer, followed by the application of an iron based alloy. Claim 11 recites that such process is carried-out by the formation of a metallurgical bond at said location where said oxidized surface layer has been reduced by said deoxidizing element. Applicant notes the Examiner's suggestion that since Branagan discloses a certain iron based alloy, Branagan "reads on" the claimed deoxidizing elements as was recited in claim 6.

It is believed that the amendments to the claims recite steps that are not disclosed in Branagan. For example, even if one assumes an overlap in composition, the amended claims recite, e.g., that one substantially cleans the surface of an oxidized layer and proceeds to apply an iron based metallic coating alloy to the metal surface that is substantially clean of said oxidized metal surface layer. The claims also recite an ASTM C633 bond strength of at least about 5500 psi. It is not believed that such process steps or bond strength characteristics are disclosed in the cited art. Therefore, it is respectfully submitted that the outstanding rejection under 35 U.S.C. §102 in view of Branagan has been rendered moot.

It is also believed that Branagan does not support a rejection under 35 U.S.C. §103. Again, Branagan was concerned with forming a molten alloy and cooling to form a metallic glass. The steps of independent claims 6 and 11 as amended herein are not believed to be suggested by this reference.

Appln. No.: 10/776,472
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Specifically, Applicant notes that the Examiner points to, e.g., column 7, lines 14-19 of Branagan where it is disclosed that one may employ a Fe/Cr/Mo/P/B/C type alloy. However, that in and of itself does not teach or suggest that one should (a) providing an iron based metallic coating alloy wherein said alloy includes a deoxidizing element selected from the group consisting of manganese, chromium, vanadium, titanium, zirconium, hafnium, niobium, lanthanide metals and combinations thereof and an oxygen seeking nonmetal/metalloid, wherein said deoxidizing element and nonmetal/metalloid is present between 20%-70% in said iron based metallic coating alloy; (b) melting said iron based metallic coating alloy to a liquid state; (c) applying said liquid melt of said iron based metallic coating alloy to said oxidized metal surface and removing said oxidized metal surface layer to provide a metal surface that is substantially clean of said oxidized metal surface layer and susceptible to receipt of a metallic coating; and (d) applying a iron based metallic coating alloy to said metal surface that is substantially clean of said oxidized metal surface layer and wherein said iron based metallic coating has an ASTM C633 bond strength of at least about 5500 psi.

In fact, the remarkable nature of the bond strength developed by the process of the present invention is discussed in some detail at paragraph 0021 of the published application. Notably, Branagan, who is the inventor of this application and the U.S. '185 patent, points out that the bond strengths of the present invention had "not previously been observed with thermal spray coatings."

In addition, Applicant notes that dependent claim 7 recites the step of melting said iron based alloy to a liquid state comprises forming a liquid state with no precipitates of said deoxidizing element existing in said liquid state. Applicant notes that the Examiner stated at

Appln. No.: 10/776,472
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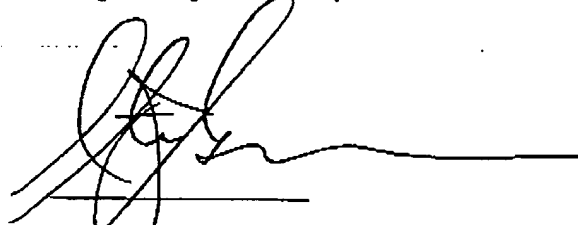
page 4 that Branagan did not teach the presence of precipitates in the molten containing alloy. This is not fully understood. The fact remains that dependent claim 7 recites a feature for which Branagan is silent. It is not understood how Branagan's silence can therefore serve to support a rejection under either 35 U.S.C. §102 or §103.

In light of the above, Applicant respectfully submits that claims 6-12 are not taught or suggested by the cited references. In consideration of the foregoing Applicant respectfully requests that the rejections of claims 6-11 are withdrawn upon reconsideration.

Having overcome all of the outstanding rejections, it is respectfully submitted that the application is now in condition for allowance. Early and favorable action is respectfully solicited.

In the event that there are any fee deficiencies, or additional fees are payable, please charge, or credit any overpayment to, our Deposit Account No. 50-2121.

Respectfully submitted,



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